

A STUDY OF THE LAUGHING TURTLE-DOVE *STREPTOPELIA SENEGALENSIS* IN PERTH, WESTERN AUSTRALIA

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INTRODUCTION

The Laughing Turtle-Dove *Streptopelia senegalensis* was introduced to Western Australia from the South Perth Zoological Gardens in 1898 and there were additional introductions in the following years (Serventy and Whittell 1976; Storr and Johnstone 1988).

Preliminary studies of the dove were made by Sedgwick (1958, 1965, 1976). He shows that it extended its range from the metropolitan area of Perth far into the country and discusses some ecological factors.

Since then it has continued to sustain itself in Perth's metropolitan suburbs and has extended its range congruently with Perth's expansion. At the same time it has extended its marginal range 500km into the South-West and 800km north to North-West Cape (Blakers *et al.* 1984). The same authors predict that it may spread into the pastoral areas. However it avoids the block of Jarrah *Eucalyptus marginata* forest to the east and south-east of Perth except where the forest has been opened up and settled. This is similar to the present range of several native species: Nankeen Kestrel *Falco cenchroides*, Black-shouldered Kite *Elanus axillaris*, Magpie-lark *Grallina cyanoleuca*, Willie Wagtail *Rhipidura leucophrys*, Richard's Pipit *Anthus novaeseelandiae*, Grey Butcherbird

Cracticus torquata and Australian Magpie *Gymnorhina tibicen*.

The House Sparrow *Passer domesticus*, Tree Sparrow *Passer montanus*, Starling *Sturnis vulgaris* and Common Myna *Acridotheres tristis* do not occur in Perth. A few native seed-eaters do but they are largely arboreal species such as: Australian Ringneck *Barnardius zonarius*, Short-billed Black Cockatoo *Calyptorhynchus latirostris* and Little Corella *Cacatua sanguinea*, and they do not compete for food with the Laughing Turtle-Dove.

The dove's main ecological competition comes from the introduced Spotted Turtle-Dove *Streptopelia chinensis*, which is also well established but less numerous. The Domestic Pigeon *Columba livia* is mostly feral but largely avoids the housing areas that support both the turtle-doves.

Outside suburbia the Laughing Turtle-Dove may be in contact and compete with the native Peaceful and Diamond Doves *Geopelia striata* and *G. cuneata*. Marginally their respective ranges already overlap (Blakers *et al.* 1984). However the Laughing Turtle-Dove is primarily an inhabitant of cities, towns and settlements so that competition between the doves may be fairly limited. Since 1956 the distribution of the Crested Pigeon *Ocyphaps lophotes* has overlapped that of the Laughing Turtle-

Dove in Perth (Serventy and Whittell 1976) Since both are drawn to human habitations they could compete with one another.

Still, it is worth noting and recording the behaviour and ecology of the Laughing Turtle-Dove in Perth and trapping and banding of the species in Perth and further observations since Sedgwick (1958, 1965, 1976) allow me to present this further study.

TRAPPING

A variety of seed-baited drop door and automatic, funnel-entry traps were used, and because continuous trapping led to trap shyness, I found it best to free-feed for short periods, before setting the traps again. This still allows the observation of colour banded birds. Cats can be a problem with unattended traps and especial care in hot weather was necessary.

The only injuries were the loss of feathers and mild abrasions to the forehead and under-shoulder. Many birds had unnatural moults i.e. tufts of body feathers and or quills torn out or regrowing, due to normal hazards and predation.

BANDING DATA

The Jersey Street Station.

This station operated intermittently between December 1960 and April 1965. Of 221 birds trapped, banded and released there 48 (22%) were retrapped 91 times, which is an average of 1.9 retraps per bird retrapped. Twelve birds (5.4%) were recovered away from the station (see Table 1).

The Salvado Road Station.

This station operated continuously between September 1960 and December 1961. Of 148 birds trapped, banded and released there 46 (31%) were retrapped 103 times, which is an average of 2.2 retraps per bird retrapped. Fourteen birds (9.5%) were recovered away from the station (Table 1).

The Caporn Street Station.

This station operated intermittently between August 1959 and April 1965. Of 605 birds trapped, banded and released there 197 (33%) were retrapped 356 times, which is an average of 1.8 retraps per bird retrapped. Twenty-nine birds (4.7%) were recovered away from the station (Table 1).

Table 1. Number of individual Laughing Turtle-Doves trapped at each of the three trapping stations and the number of recaptures. Dates for trapping stations are listed in text under Banding Data.

Trapping Station	No of Individuals Trapped	No. of Individuals Retrapped	No. of Times Retrapped	No. of Recoveries
Jersey Street Xii/60 – iv/65	221	48	91	12
Salvado Road Ix/60 – xii/61	148	46	103	14
Caporn Street Viii/59 –iv/65	605	127	356	29
Total	974	291	550	55

Of 974 birds trapped, banded and released at the three stations 291 (30%) were retrapped 550 times, which is an average of 1.9 retraps per bird retrapped. Fifty-five birds (5.6%) were recovered away from the stations (Table 1).

SEDENTARY NATURE AND HOMING ABILITY

The sedentary nature of the adults in Perth was revealed by Stranger (1968). Of 57 adult recoveries away from the banding stations 39 (68%) were recovered within 0.4km of their banding places, 46 (81%) were recovered within 0.8km, 52 (91%) were recovered within 1.6km, 54 (95%) were recovered within 3.2km and 57 (100%) were within 10km. The juveniles did not differ greatly.

Also, though the Salvado Road and Jersey Street stations were only 0.5km apart, none of the Salvado Road birds were trapped or seen at or recovered near the Jersey Street station, and vice versa. This would seem to indicate that the birds only feed at or near their banding places.

Homing experiments (Stranger 1968) showed that adults transported up to 160km from their banding places had the urge and ability to return home through strange and unknown country i.e. the forest and wheatbelt east of Perth.

A juvenile bird which was trapped, banded and released at the Salvado Road station was retrapped there four times in the next six months. It was then exhibited for one week in a wild-life show in central Perth, 5km from Wembley, and was released there afterwards. One and a half years later it was trapped at the Caporn Street station, 5km from Perth, and

subsequently homed to that station from distances of 100km and 160km.

EXTENSION OF RANGE

It is probable that the juveniles are primarily responsible for extending the species' range in W.A. (Blakers *et al.* 1984) but Morris *et al.* (1994) observed two adults arrive (and perish ?) on Bernier Island, 40km west of Carnarvon. But the situation probably parallels that of the Collared Turtle-Dove *Streptopelia decaocto* in which the adults are also very sedentary and the juveniles disperse extensively (Derek Goodwin pers. comm.). However my data does not support this for the juvenile Laughing Turtle-Doves in Perth, for the majority were recovered in the vicinity of their banding places and at distances similar to those of the adults.

RACE AND PLUMAGE

Derek Goodwin judged that specimens collected in Perth in 1965 could be matched with specimens from East Africa, south of the Sahara. This is the nominate race *Streptopelia senegalensis senegalensis* (Serventy and Whittell 1976; Storr and Johnstone 1988).

However Derek Goodwin (pers. comm.) now judges that all the Laughing Turtle-Doves on mainland Africa south of the Sahara are best considered as *S.s.senegalensis* and the specimens collected in Perth are inseparable from those of Africa.

In Perth the richness of the plumage varies considerably and the sexual differences may be masked by it. The colours of the soft parts also vary considerably. A small number of birds had a melanistic tone to the plumage, it varying from brown to dark brown. This

may be dietary induced melanism (Derek Goodwin pers. comm.). One bird had very distinct whitish eyebrows

A female bird which was hand-reared and kept in captivity begun egg-laying at 7.5 months of age (C.A. Nicholls pers. comm.) and at that age the bird's breast was fully spotted, the spots having established themselves at random on the breast. This latter is my observation and conclusion too.

STATISTICS

Some measurements are given in Table 2.

FOOD

In Perth the Laughing Turtle-Dove prefers small seeds such as panicum and white millet but readily eats wheat and will even eat such large seeds as maize. In Egypt Derek Goodwin (pers. comm.) observed first-hand that the species fed on small wild seeds but that numbers of the birds scavenged maple peas and maize from around the Army pigeon lofts. Goodwin (1970) states that

"much of the natural food consists of very small seeds of various wild plants".

Goodwin (1978) says that the Laughing Turtle-Dove is a common bird in African villages where it usually feeds partly on grains, usually various millets, spilled by Man. Blakers *et al.* (1984) state that it will feed on crops of small grain.

Thus the species is well suited to take advantage of the seeds from Perth's flora, both native and exotic, and the gardens of the houses and public places are extensively and intensely foraged over. One dead bird found by the roadside in Wilson in the early 1970s had in its crop 134 grains of wheat, 20 portions of wheat, several very small "poppy seeds" and two other seeds. A bird trapped at the Caporn Street station had its crop filled with panicum seed. It was weighed upon capture and held in a small cage overnight. When weighed next morning it was 13gm lighter (118gm - 105gm), a weight loss of 11%.

The species will strip unripe seeds from the Winter Grass *Poa annua* and forages extensively over Perth's lawns, the

Table 2. Measurements of some of the adult Laughing Turtle-doves trapped.

	Sample No	Range (cm)	Average (cm)
Body Length	101	23.0 - 27.5	25.5
Tail Length	71	9.8 - 12.5	11.3
Wing Length	164	12.0 - 14.5	13.4
Wing Span		35.5 - 42.5	
Culmen		1.3 - 1.6	
Tarsus		1.9 - 2.5	
MT & C		2.3 - 2.8	
Weight (gm)	94	81 gm- 118 gm	101.5 gm.

The measurements shown in Table 2 were taken from live birds. Allowance was made for quill wear, which can be substantial (0.5 cm. - 0.75 cm). The wing span data is a best fit measurement. Generally the lower weights were recorded from birds which had no seed visible in their crops, and the birds with the higher weights had at least some seed in their crops (see Food).

latter of which has also been observed in Cairo, Egypt, by Derek Goodwin (1978). Most Perth lawns are either couch or buffalo grasses, are regularly mowed and the seeds from nearby plants find their way onto them.

The dove also feeds on seeds which are released from their fruits by vehicular traffic, such as happens on roadways and parking lots, and Goodwin (1978) has also observed this type of foraging in the Collared Turtle-Dove in England. I have also seen it in the Peaceful Dove at Townsville, Queensland.

The Laughing Turtle-Dove will eat mill offings such as bran and the various mashes fed to poultry, both in commercial and domestic situations. It learns to eat wet bread and will scavenge for scraps and breadcrumbs at bakeries, shopping centres, outdoor dining tables and beer gardens.

It will also range onto oceanic beaches where it will forage, presumably, for the seeds of plants such as the Strand Daisy *Arctotheca nivea*, as does the Spotted Turtle-Dove (Stranger 1969).

ECOLOGICAL COMPETITION

The introduced Spotted Turtle-Dove competes for food and situations with the Laughing Turtle-Dove but though the former is well established it is less common. Another factor is that the Spotted Turtle-Dove largely confines itself to the more mature gardens with their abundant shelter and denser foliage, which are in the older suburbs. In Perth Goodwin (1978) has made this assessment too. The Laughing Turtle-Dove however will range into areas with sparser vegetation, such as the newer housing areas and industrial installations. In Perth Goodwin (1978) independently made this assessment too

and notes that though it seems to be a bird of arid areas, it needs some source of water nearby (Goodwin 1970).

The Laughing Turtle-Dove can occupy areas with either dense or sparse vegetation and it will rest in very exposed situations such as on dead and leafless branches and power lines.

The two species will feed together where food is plentiful but the Spotted Turtle-Dove, being the larger of the two, will bully the Laughing Turtle-Dove and chase it away from food. Overall it seems that competition from the former does not limit the latter much. It does seem however that the former has an advantage over the latter and selects and occupies those habitats and areas that it wants to, and that in Perth the Laughing Turtle-Dove simply occupies the remaining habitat, though the two species range together.

In the early 1960s C.A. Nicholls set up a bird hospital in Dalkeith and the ratio of Spotted Turtle-Doves to Laughing Turtle-Doves presented to her then was 1:20. Twenty-five years later, in the mid-1980s, the ratio had changed to 3:20. This is due to the vegetation of the inner, and older, suburbs of Perth becoming more mature with denser foliage, these areas now providing the Spotted Turtle-Dove with additional suitable habitat. So the Spotted Turtle-Dove is becoming more abundant at the expense of the Laughing Turtle-Dove.

The introduced Domestic Pigeon, which is fairly common in Perth's metropolitan area, also competes with the Laughing Turtle-Dove - and the Spotted Turtle-Dove - for food such as wheat and that found in the public gardens. The three species can also be seen feeding near each other in parks and gardens but the Domestic Pigeon rarely ranges into the gardens of the housing areas and does

not threaten the survival of the two turtle-doves in Perth. Being the largest however it will bully the turtle-doves and chase them away from food.

MORTALITY

Motorised vehicles cause some death and injury to the Laughing Turtle-Dove in Perth because the birds feed on the roads, verges and footpaths, and fly low over them. The Domestic Cat preys extensively on it and C.A.Nicholls (pers. comm.) estimates that two-thirds of the doves presented to her bird hospital had been mauled to some degree by cats. It is probable though that of the deaths and injuries ascribed to cats some had first been injured or killed in other ways e.g. by a motor vehicle.

It is also possible that some doves die after eating food which has been poisoned by sprays and dusts in domestic gardens. Such an incident occurred on a poultry farm where I was working in 1958. The area had been sprayed to eradicate the Argentine Ant and several dead Laughing Turtle-Doves and a few Spotted Turtle-Doves were found around the farm the following day and during the next week.

Predation by hawks takes place but there are few records. Calderwood (1954) observed predation by a Swamp Harrier *Circus approximans* and both C.A.Nicholls and myself have independently witnessed predation by the Brown Goshawk *Accipiter fasciatus*. I have also witnessed attempted predation by the Little Falcon *Falco longipennis* but though the falcon struck the dove it did not maim or kill it and the dove flew away strongly, even if with a few less feathers.

At Dalkeith C.A.Nicholls (pers.comm.)

has often seen the introduced Brown Kookaburra *Dacelo gigas* prey on this dove's nestlings and it was in fact a regular occurrence. Mueller (1991) observed predation of this dove's nestlings by the Grey Bucher-bird.

Eggs and nestlings thrown out of nests and "fledgling" juveniles which seem to have left the nest prematurely are common in Perth, and the situation is mostly due to very strong winds, many of the nests being simple rafts built in unsafe situations.

LONGEVITY

The oldest birds recovered by the public were of the following banded ages: 7 years 8 months, 6 years 8 months, 5 years 6 months, 4 years, 3 years 8 months, 3 years 5 months, 3 years 3 months (two birds), 3 years 2 months (two birds) and 3 years (two birds). As all the birds were in adult plumage when banded their real ages would be six months greater.

BREEDING

Storr and Johnstone (1988) define the breeding season of this dove locally as July to March, but nestlings were presented to C.A.Nicholls' bird hospital throughout the year. Numbers were at a peak in spring, a lesser peak in autumn and at a minimum during the cold and wet months of winter.

Goodwin (1970) states that the species will nest in and on buildings and it will nest in artificial situations locally. Birds may even nest in exposed situations such as the cross arms of power poles and the ledges of buildings. A few nests were within one and one-half metres of the ground.

A female bird that was hand reared (see

Race and Plumage) and kept in captivity begun egg-laying at 7.5 months of age and by the time it died at 7.5 years of age it had laid 120 eggs: 17 per year. However each egg was removed from it when laid (C.A.Nicholls pers. comm).

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